Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-51. (canceled)

52) (new) A method for processing fragment analysis data comprising:

- Receiving the fragment analysis data wherein the data represents intensity and nucleic acid fragment length information,
- Determining the peaks of the fragment analysis data and forming a signal from said peaks,
- Determining the minima and maxima of the signal and dividing the signal into panels with boundaries at each local minimum,
- Determining if at least three panels exist, and if so,
- Computing the energy in each panel,
- Performing a first test to determine if the ratio of energy in the panel with the second greatest energy to the energy in the panel with the greatest energy exceeds a first threshold,
- Performing a second test to determine if the ratio of energy in the panel with the third greatest energy to the energy in the panel with the second greatest energy exceeds a second threshold,
- Calling alleles in each of the first and second panels if the first and second tests are passed, and
- Reporting the allele calls to a user.

53) (new) The method of claim 52 wherein said calling alleles step comprises:

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- Defining a first allele in the panel with the greatest energy as the fragment length corresponding to the maximum intensity value in the first panel, and

- Defining a second allele in the panel with the second greatest energy as the fragment length corresponding to the maximum intensity value in the second panel.

54) (new) The method of claim 52 wherein the energy is defined as summing the square of the signal contained in the panel.

55) (new) A computer readable medium containing instructions for controlling a computer system to perform a method of processing fragment analysis data, the method comprising:

- Receiving the fragment analysis data wherein the data represents intensity and nucleic acid fragment length information,

- Determining the peaks of the fragment analysis data and forming a signal from said peaks,

- Determining the minima and maxima of the signal and forming and dividing the signal into panels with boundaries at each local minimum,

- Determining if at least three panels exist, and if so,

- Computing the energy in each panel,

- Performing a first test to determine if the ratio of energy in the panel with the second greatest energy to the energy in the panel with the greatest energy exceeds a first threshold,

- Performing a second test to determine if the ratio of energy in the panel with the third greatest energy to the energy in the panel with the second greatest energy exceeds a second threshold, and

- Calling alleles in each of the first and second panels if the first and second tests are passed, and

- Reporting the allele calls to a user.

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56) (new) The computer readable medium of claim 55 wherein said calling alleles step comprising:

- Defining a first allele in the panel with the greatest energy as the fragment length corresponding to the maximum intensity value in the first panel, and
- Defining a second allele in the panel with the second greatest energy as the fragment length corresponding to the maximum intensity value in the second panel.

57) (new) The computer readable medium of claim 55 wherein the energy is defined as the summing the square of the signal contained in the panel.